www.revistageintec.net
ISSN: 2237-0722
revista GEINTEC Gestão, Inovação e Tecnologias

Enhancing Roles of Banks and the Comparison of Market Risk and Risk Policy Implications in Group of Listed Vietnam Banks During 2 Stages: Pre and Post-Low Inflation Period

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Abstract
By classifying period 2011-2020 into 2 stages: pre-low (L) inflation stage (2011-2015) and post-low inflation stage (2015-2020), we can compare market risk in total 7 listed big banks in Vietnam including: Previous SOEs banks (including VCB and CTG) and Previous Private banks (including STB, SHB, NVB, EIB and ACB).
Authors then use combination of quantitative methods (statistics, calculation formulas) and qualitative methods including synthesis, inductive and explanatory methods, esp. Authors use comparison methods for analyzing and evaluating beta CAPM (Stand for market risk) of banks in 2 special stages.
The research findings tell us that In groups of banks (SOEs previously) VCB and CTG we find out: beta mean GAP of CTG higher than beta mean GAP of VCB case (0.24 > 0.19), and GAP of beta mean is positive in this case for both periods. In groups of joint stock banks (private banks) SHB, STB, NVB, ACB and EIB we figure out: beta mean GAP of STB is the highest (0.68) while only 1 case SHB, in which beta mean GAP is negative (-0.26).
Besides, this study also give out recommendations for risk policy implications for bank system and for the country.

Key-words: Risk Policies, Vietnam Banks, Beta CAPM, Comparison, Inflation, Economic Development, Vietnam.

JEL: M21, G30, G32, G38.

1. Introduction

First, we emphasizes again roles of commercial banks in our economy: Improving economic efficiency, Shortening the speed of goods and currency circulation, Contributing to the continuous uninterrupted production of business, providing investment capital and credit circulation tools in the import and export tariff 2020, taking part in controlling economic activities, participating in the stability of the financial market and stock market. Facilitating the development of these markets through discounting deals with the ability of fast circulation of securities, and providing investment information, consulting and services.

Then, we recognize the importance of building better risk management information system (RMIS) in banking also increase to a new level in recent years.

In this paper we mainly focus on using reliable internet data in comparing and evaluating the key factor: beta CAPM under macro factors effects, for 7 big listed banks in Vietnam: a) group 1: Vietcombank - VCB and Vietinbank - CTG (previously, SOE) and b) group 2: Asia Commercial Bank - ACB, Eximbank -EIB, Saigon Hanoi Bank -SHB (previously, private bank), Navibank (later National Citizen Bank) - NVB, Sacombank _STB.

All internet data we take from reliable internet data sources, esp. from Vietnam stock exchange.

Research Questions

We address the question: What are analysis of market risk comparing during 2 special stages: pre and post-L inflation time in Vietnam?

2. Literature Review

First, Karim (2011) pointed Management Information Systems (MIS) is the key factor to facilitate and attain efficient decision making in an organization.

Received: 28.03.2021 – Accepted: 28.04.2021

Then, We summarize previous studies as follows:

Table 1 – Summary of Previous Studies

Domestic researches	**Authors name**	**Results, contents**
1.Fama-French 3-Factor Model: The empirical evidence from the Ho Chi Minh City Stock Exchange	Trương Đông Lộc and Dương Thị Hoàng Trang (2014)	The research results show that earnings of stocks are positively correlated with market risk, firm size and the book value to market value (BE / ME) ratio. In other words, the Fama - French 3-factor model is suitable in explaining the change in profits of stocks listed on HOSE.
2.The econometric model for stock prices in the period 2008-2011 - Case of stock prices ACB, VNIndex, risk free rate and S& P500	Đinh Trần Ngọc Huy (2015)	Analyze the impact of VNIndex and internal and external macro variables on the stock price of ACB.
3.The theory of average return of K.Marx and model of capital asset pricing	Nguyễn Thị Hường (2017)	The limitation of Vietnam's stock market is the lack of beta in stock analysis. However, as the market portfolio matures, beta will keep pace with the development of the market.
4. Book chapter by Dinh Tran Ngoc Huy (2021, Springer Verlag book chapter) "Impacts of Internal and External Macro Factors on Firm Stock Price in An Econometric Model – A Case In Viet Nam Real Estate Industry"	Đinh Trần Ngọc Huy (2021)	Presenting a regression model analyzing the impact of internal macro variables (inflation in Vietnam, lending rate, risk-free rate) and external (US inflation, exchange rate, S&P 500) on stock prices Vingroup is as follows: Stock price_VIC = -245.13 * Inflation_CPI + Lendingrate - 815.06*Rf_rate USD_VND_rate+0.07*SP500 - 372.08*Inflation_US, R2 = 0.84, SER = 19.7
5. Systemic risks in banking business - periods of crisis	Nguyễn Thanh Bé, Bùi Quang Hưng (2019)	Presented in Vietnam, the risk management system at commercial banks has been paid attention to a certain extent in the past few years, but due to its structural and technical limitations, this system has not can meet the complex requirements of a modern commercial bank operating in the current risky environment.
6. Factors affecting the return rate of listed stocks from the Fama French 5-factor model	Trịnh Minh Quang et al (2019)	Referring to factors of market change will strongly affect the share prices of large companies.
International researches	**Authors name**	**Results**
1. The Impact of Macroeconomic and Financial Variables on Market Risk: Evidence from International Equity Returns	Patro et al (2002)	They found that a number of variables including imports, exports, inflation, market capitalization, dividend yield, and a book-to-book price ratio significantly influence a person's world market risk at national level.
2. Do economic factors influence stock returns? A firm and industry level analysis	Butt et al (2010)	The results revealed that market returns are primarily changes in stock returns, but macroeconomic variables and industry-related variables add explanatory power in describing volatility. stock returns.
3.Macroeconomic factors and micro-level bank risk	Claudia et al (2010)	The risk of about a third of US banks increases in response to monetary easing.
4.Impact of Macroeconomic Factors on Banking Index in Pakistan	Saeed và Akhter (2012)	In Karachi stock market, Regression results show that exchange rate and short-term interest rate have a significant impact on the Banking index. Macroeconomic variables such as money supply, exchange rate, industrial production and Short-term interest rate and exchange rate have a negative effect on banking index while oil price has a positive effect on the bank index. Banking index.

5.Impact of Macroeconomic Indicators on Stock Market Performance: The Case of The Istanbul Stock Exchange	Arnes (2014)	Their analysis has shown that for investors interested in Turkey, first of all, be careful not to assume that relationships that existed in the past will continue into the future. We also find that depending on the sector, the effects of changes in macroeconomic variables will also differ. For policymakers and lawmakers, however, our findings indicate that keeping interest rates low has been a good policy for the past 20 years.
6.Bank Leverage Ratios and Financial Stability: A Micro- and Macroprudential Perspective	Emilios (2015)	The leverage cycle can cause financial instability and the impact of limited leverage on bank governance performance.
7. Effect Of Macroeconomic Variables On Stock Market Returns For Four Emerging Economies: Brazil, Russia, India, And China	Gay (2016)	According to the hypothesis, the relationship between the exchange rate and the security's price should be in the same direction.
8. The Impact of Macroeconomic Factors on the German Stock Market: Evidence for the Crisis, Pre- and Post-Crisis Periods	Celebi and Honig (2019)	In Germany, the aggregate index (OECD), the Economic Research Institute's Export Expectations index, the climate index, exports, CPI, as well as the 3-year German government bond yield has a delayed effect on stock returns
9. Impacts of macro variables on Starbucks Corp.	Kumaresan (2019)	Indicates that compared to internal corporate factors, macroeconomic factors (exchange rate) have a greater effect on firm performance.

3. Methodology

Method and Data

This study mainly use combination of quantitative methods and qualitative methods including synthesis, inductive and explanatory methods. And it emphasizes again important roles of internet data in sustainable bank risk management.

We use both quantitative and qualitative analytical methods, with beta CAPm traditional formula. Data is collected from reliable internet sources and websites as below:

Most data from stock exchange and reliable. Stock price from HOSE or HNX stock exchange, rates from bank system.

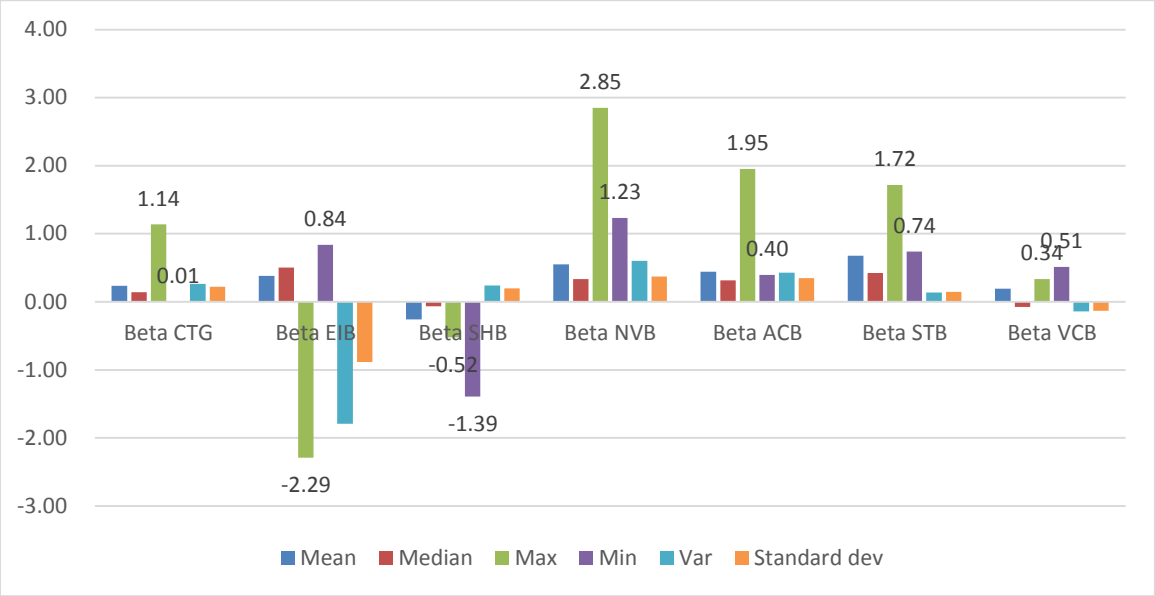
We therefore can estimate and compare risk effects on bank.

4. Main Results

4.1 Overall Results

First we analyze from below chart 1:

Chart 1 - GAP of Statistic Values of Beta of 7 Listed Banks Period 2015-20 Compared to Period 2011-15



(source: author calculation and Vietnam stock exchange)

We see that

- In group of previous SOE banks (CTG and VCB): highest max beta value reached 1.14 in case CTG bank.
- In group of previous private banks (EIB, SHB, NVB, STB and ACB): highest max beta value reached 2.85 in case NVB bank.

4.2 Findings

We found out from the below table 1 that only 2 banks ACB and VCB there is no negative value of beta CAPM. Whereas in EIB case, there are 2 negative beta values.

Table 1 - Beta CAPM of 7 Listed Big Banks During pre-L Inflation Stage (2011-15)

	Beta CTG	**Beta EIB**	**Beta SHB**	**Beta NVB**	**Beta ACB**	**Beta STB**	**Beta VCB**
Jun-11	0.16	4.79	0.90	0.33	0.28	0.17	0.25
Dec-11	0.18	0.15	1.25	0.53	0.29	0.16	0.24
Jun-12	0.64	1.12	1.46	0.39	0.76	0.69	1.34
Dec-12	1.40	1.03	1.65	0.17	1.42	0.73	1.05
Jun-13	0.25	0.82	0.83	0.16	0.61	0.52	1.23
Dec-13	-0.03	-0.45	0.31	-1.59	0.05	-0.18	1.09
Jun-14	0.46	0.20	0.95	0.19	0.37	0.62	1.31
Dec-14	-0.28	-0.02	-0.07	0.69	0.01	0.01	0.08
Jun-15	0.58	1.08	0.97	0.05	0.71	0.94	1.64
Dec-15	0.85	1.34	0.69	0.07	0.97	0.84	1.76

(source: author calculation and Vietnam stock exchange)

We found out from the below table 2 that only 2 banks ACB and VCB there is no negative min value of beta CAPM. And highest max beta value belongs to EIB (4.79) and 2nd highest value belongs to VCB (1.76).

Table 2 - Statistics Values of 7 Listed Banks During Pre-L Inflation Stage

	Beta CTG	**Beta EIB**	**Beta SHB**	**Beta NVB**	**Beta ACB**	**Beta STB**	**Beta VCB**
Mean	0.42	1.00	0.89	0.10	0.55	0.45	1.00
Median	0.35	0.92	0.93	0.18	0.49	0.57	1.16
Max	1.40	4.79	1.65	0.69	1.42	0.94	1.76
Min	-0.28	-0.45	-0.07	-1.59	0.01	-0.18	0.08
Var	0.23	2.12	0.26	0.39	0.19	0.15	0.36
Standard dev	0.48	1.46	0.51	0.63	0.44	0.38	0.60

(source: author calculation and Vietnam stock exchange)

We found out from the below table 3 that in 4 banks EIB, STB, ACB and VCB there is no negative value of beta CAPM. Whereas in CTG, SHB and NVB cases, there are negative beta values.

Table 3 - Beta CAPM of 7 Listed Big Banks during Post-L Inflation Stage (2015-20)

	Beta CTG	**Beta EIB**	**Beta SHB**	**Beta NVB**	**Beta ACB**	**Beta STB**	**Beta VCB**
Jun-15	0.58	1.08	0.97	0.05	0.71	0.94	1.64
Dec-15	0.85	1.34	0.69	0.07	0.97	0.84	1.76
Jun-16	0.43	1.14	0.84	1.15	0.49	0.85	0.87
Dec-16	0.55	0.58	1.13	-0.36	0.40	0.56	2.10
Jun-17	2.53	2.50	-1.46	3.54	3.37	2.65	0.79
Dec-17	1.29	2.00	0.66	0.63	0.75	1.11	1.11
Jun-18	0.41	1.51	1.07	0.61	1.04	1.12	1.35
Dec-18	0.37	1.59	1.01	0.81	1.09	1.43	1.06
Jun-19	-0.28	1.68	0.69	0.42	0.86	1.05	0.59
Dec-19	0.65	1.38	0.96	0.61	0.60	0.89	1.39
Jun-20	0.13	0.39	0.18	-0.01	0.52	0.85	0.60
Dec-20	0.36	1.47	0.89	0.26	1.08	1.21	1.04

(source: author calculation and Vietnam stock exchange)

We found out from the below table 4 that only 3 banks EIB, ACB and VCB there is no negative min value of beta CAPM. And highest max beta value belongs to NVB (3.54) and 2nd highest value belongs to ACB (3.37).

Table 4 - Statistics Values of 7 Listed Banks during Post-L Inflation Stage

	Beta CTG	Beta EIB	Beta SHB	Beta NVB	Beta ACB	Beta STB	Beta VCB
Mean	0.66	1.39	0.63	0.65	0.99	1.12	1.19
Median	0.49	1.42	0.86	0.51	0.81	0.99	1.08
Max	2.53	2.50	1.13	3.54	3.37	2.65	2.10
Min	-0.28	0.39	-1.46	-0.36	0.40	0.56	0.59
Var	0.49	0.33	0.50	1.00	0.62	0.28	0.22
Standard dev	0.70	0.57	0.71	1.00	0.79	0.53	0.47

(source: author calculation and Vietnam stock exchange)

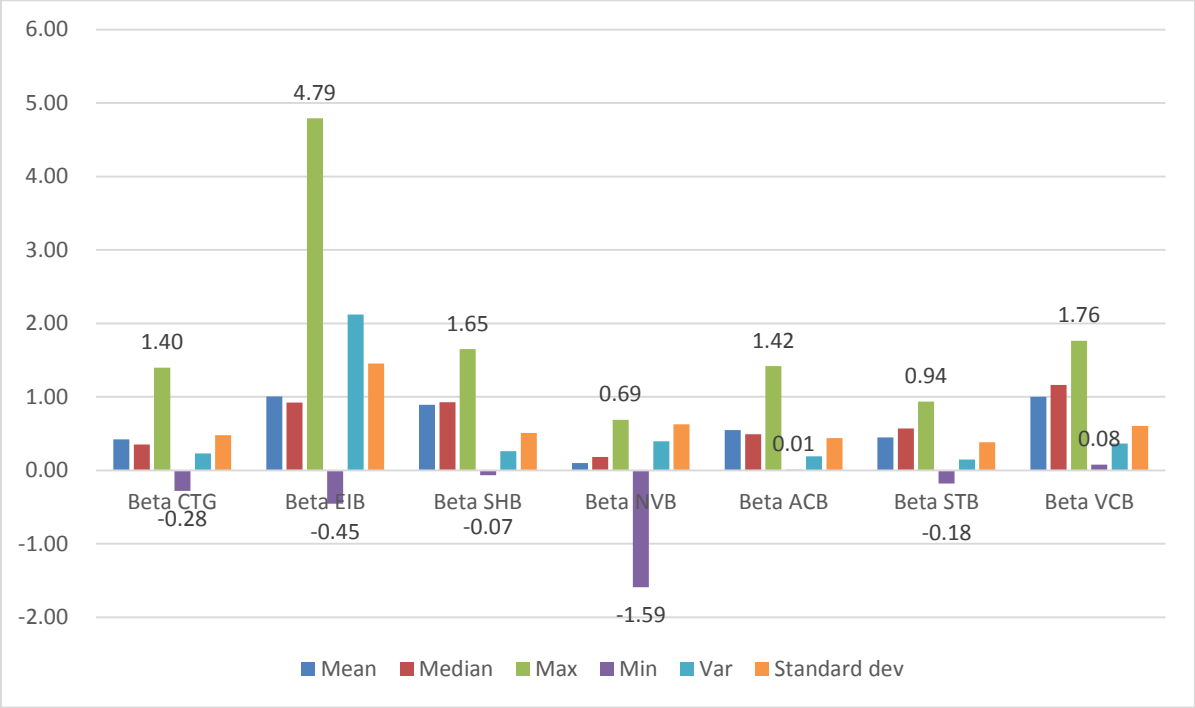
We found out from the below table 5 that only in 1 case - SHB bank: there is negative value of beta GAP, which means that beta mean in post-L stage lower than that in pre-L stage. Other banks cases, results show positive beta gap.

Table 5 - GAP (+/-) Period 2015-20 Compared to Period 2011-15

	Beta CTG	Beta EIB	Beta SHB	Beta NVB	Beta ACB	Beta STB	Beta VCB
Mean	0.24	0.38	-0.26	0.55	0.44	0.68	0.19
Median	0.14	0.50	-0.06	0.33	0.31	0.42	-0.08
Max	1.14	-2.29	-0.52	2.85	1.95	1.72	0.34
Min	0.01	0.84	-1.39	1.23	0.40	0.74	0.51
Var	0.26	-1.79	0.24	0.60	0.43	0.14	-0.14
Standard dev	0.22	-0.89	0.20	0.37	0.35	0.15	-0.13

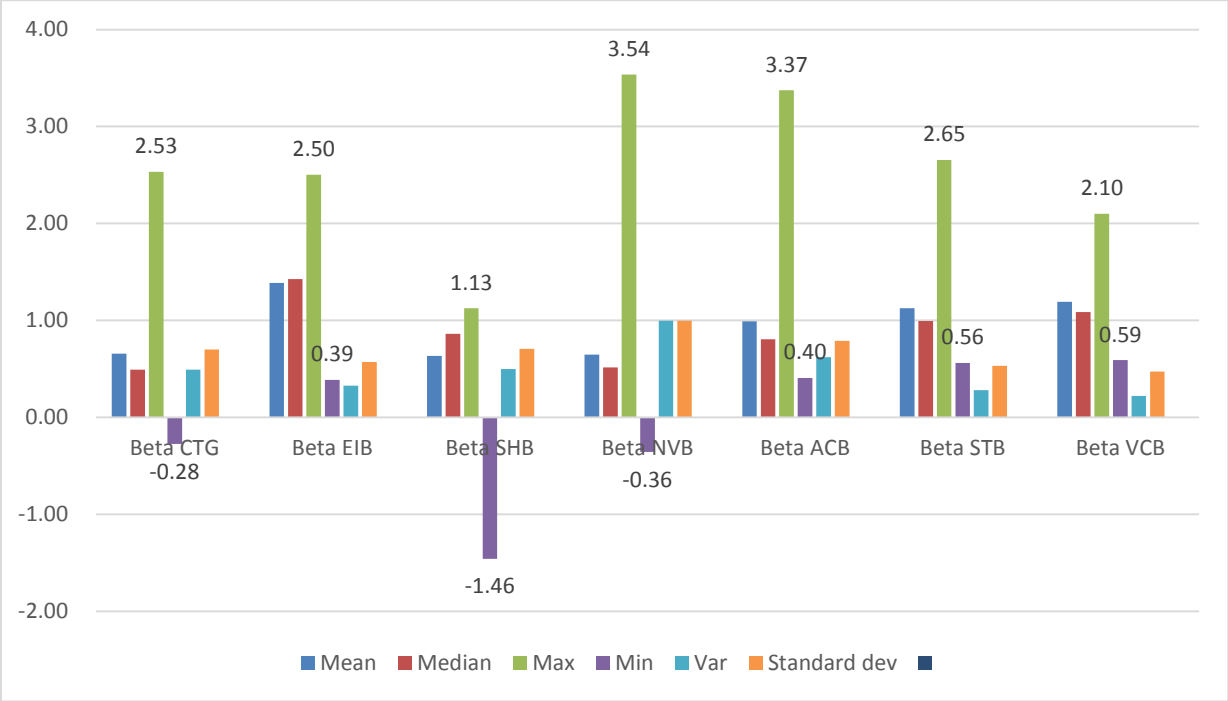
(source: author calculation and Vietnam stock exchange)

Chart 2 - Statistic Values of Beta of 7 Listed Banks Period 2011-15



(source: author calculation and Vietnam stock exchange)

Chart 3 - Statistic Values of Beta of 7 Listed Banks Period 2015-20



(source: author calculation and Vietnam stock exchange)

5. Discussion

We found out from the above chart 2 and chart 3 that beta max highest in case of NVB (3.54), then ACB (3.37) and next is STB (2.65). This happens during post-L inflation period.

Also we figure out that beta max highest in case of EIB (4.79), then VCB (1.76) and next is ACB (1.42). This happens during pre-L inflation period.

For further analysis, we can add effects of factors that affect beta CAPM or market risk of listed banks.

6. Conclusion

Comparing 2 Special Stages

In groups of banks (SOEs previously) VCB and CTG we find out: beta mean GAP of CTG higher than beta mean GAP of VCB case (0.24 > 0.19), and GAP of beta mean is positive in this case for both periods.

In groups of joint stock banks (private banks) SHB, STB, NVB, ACB and EIB we figure out: beta mean GAP of STB is the highest (0.68) while only 1 case SHB, in which beta mean GAP is negative (-0.26).

Mukhamadeev et al (2019) stated that the role of information systems for entrepreneurship education in developing countries on the example of the Azerbaijan education system and Internet banking. The information systems role in entrepreneurship education was determined with the help of online questionnaire.

From the above analysis, Government and Ministry of Finance and bank system need to perform:

- Completed implementation of risk analysis models under the impact of monetary and financial policies.

Limitation of Research

We can expand our research model for other industries and other markets.

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